

REMARKS

This paper is in response to the Office Action dated February 5, 2004. Claims 16, 22, 30 and 31 are amended herein, and new Claim 32 has been added. The amended claims recite a magnetic article of manufacture that is formed by the process of thermal spraying which results in a magnet comprising a substrate layer and a magnetic layer of mechanofused particles. The new claim recites a magnetic article of manufacture that is formed by the process of thermal spraying which results in a magnet consisting essentially of a substrate layer and a magnetic layer of mechanofused particles. As a result of the mechanofusion and thermal spraying processes, the final product that is formed has novel characteristics that are necessarily introduced by these processes.

The amended and new claims are fully supported by the originally filed specification, claims and drawings (*see, e.g.*, specification at page 12, lines 1-18; page 20, lines 5-19). As such, no new matter is introduced by the new and amended claims. Claims 16, 17, 19-23 and 25-32 are pending.

Claims 16, 19-22 and 25-27 are rejected under 35 U.S.C. § 102, or alternatively under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 3,985,588 to Lyman ("Lyman") (item 4 of the Office Action). Claims 16-17, 19-23 and 25-31 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 6,468,678 to Dahlin et al. ("Dahlin") in view of U.S. Patent No. 6,217,252 to Tolliver et al. ("Tolliver") (item 6 of the Office Action).

At the outset, Applicants wish to thank the Examiner for extending the courtesy of the March 25, 2004 telephonic interview with Applicants' attorney, Peter Shen. During the interview, the Examiner pointed out that it was necessary to distinguish the final product over the prior art irrespective of the manner in which the product was made. The amendments and remarks herein address the Examiner's concerns.

Rejections of Claims 16, 19-22 and 25-27 Under 35 U.S.C. § 102

The Examiner asserts that Lyman discloses the presently claimed invention. With respect to the claims as amended, Applicants assert that Lyman is not an anticipating reference which must describe the claimed invention in as complete detail as recited in the claim. *See, e.g., Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) ("Every element of the claimed invention must be literally present, arranged as in the claim. The identical invention must be shown in as complete detail as is contained in the patent claim."). Unlike the presently claimed invention, Lyman teaches a magnet in which the magnetized particles are "concentrated in the peripheral region of the resin." (Lyman at col. 3, line 49). Specifically, Lyman teaches that:

By reason of the rotation of container 1 while the magnetized particles are being introduced, said particles ultimately will become substantially uniformly distributed around the circumference of the body of resinous material and throughout its length, and also will tend to concentrate themselves in a region of the body of resinous material in the vicinity of its peripheral surface while leaving a lower concentration of the particles in the region of the inner surface of said body. In fact, in regions immediately adjacent the

inner surface of the body, the concentration of such particles may approach zero.

(Lyman at col. 3, lines 31-42). Indeed, these features of the magnet are the essence of Lyman's invention as is made evident by the language of the issued claims which all require:

introducing premagnetized particles of powdered permanent magnet material into said resinous material while said mold is being spun, the rate of spinning of said mold being sufficient to cause said particles to be uniformly distributed around the circumference of said resinous material and throughout its length and to become densely concentrated in a region of said body of resinous material in the vicinity of its peripheral surface while leaving a lower concentration of said particles in the region of the inner surface of said body.

In direct contrast, the magnet of the present invention has no such distribution because, as Applicants explicitly state in the instant specification and claims as amended, the claimed magnet is formed by the processes of incorporating the magnetic particles by mechanofusion into or onto a matrix material, and thermally spraying the mechanofused composite particles onto a substrate in the presence of an applied magnetic field. Since the resulting magnet does not exhibit the gradient of magnetic particles taught by Lyman – specifically a high concentration of magnetic particles near the peripheral surface and a very low concentration of magnetic particles near the inner surface – Lyman's disclosure of a magnet having such a gradient of magnetic particles clearly fails to teach each and every element of the presently claimed invention. Furthermore, Lyman does not teach mechanofused magnetic particles.

Accordingly, Lyman does not anticipate the presently claimed invention, and

Applicants respectfully request withdrawal of the rejection of Claims 16-17, 19-23 and 25-31 under 35 U.S.C. § 102.

Rejections of Claims 16, 19-22 and 25-27 Under 35 U.S.C. § 103(a)

Similarly, Lyman's disclosure of a magnet having a gradient of magnetic particles fails to make obvious the presently claimed invention. Lyman notes that "the higher the speed at which the container 1 is rotated, the more dense will be the concentration of the particles in the outer region of the body of resinous material, the denser the concentration of particles in the matrix of resinous material, [and] the more effective will be the magnetic structure produced." (Lyman at col. 6, lines 45-54). Therefore, Lyman's requirement for rotation, and preference for higher rates of rotation, cannot provide any motivation to alter the Lyman magnet to arrive at the magnet of the presently claimed invention. Instead, the magnets that are formed as a result of Lyman's disclosed processes teach away from the magnets of the invention which are not formed by rotation, but rather, necessarily have magnetic particles that are incorporated by mechanofusion into or onto matrix material and require that these mechanofused composite particles be thermally sprayed onto a substrate to form the final article.

Unquestionably, any proposed modification of Lyman's teachings to reach the claimed invention would require overhauling and abandoning the explicit teachings of Lyman and introducing methods of manufacture that would not have been envisioned by one of ordinary skill in the art at the time Lyman filed his patent application. Accordingly, Applicants respectfully assert that, when taken as a whole, Lyman does not provide any motivation to arrive

at the presently claimed invention. As such, Lyman does not make obvious the presently claimed invention, and Applicants respectfully request withdrawal of the rejection of Claims 16-17, 19-23 and 25-31 under 35 U.S.C. § 103(a).

Rejections of Claims 16-17, 19-23 and 25-31 Under 35 U.S.C. § 103(a)

The Examiner maintains that Dahlin in combination with Tolliver make obvious the invention of Claims 16, 17, 19-23 and 25-31 (*see* item 6 of the Office Action). The Examiner asserts that Dahlin discloses a single, magnetic layer, and therefore discloses the same invention of Claim 16. The Examiner further claims that Tolliver discloses a substrate with magnetic particles “in the layer” which overlaps in scope with Claim 30 and its recitation of “into or onto matrix material.”

Independent claims 16, 22, 30 and 31 have been amended to require that the magnet of the invention be formed by incorporating the magnetic particles by mechanofusion into or onto a matrix material and by thermally spraying the mechanofused composite particles onto a substrate in the presence of an applied magnetic field. Dahlin, however, does not teach or suggest magnets having mechanofused composites of magnetic particles and matrix material. Dahlin also fails to teach or suggest a magnet formed by thermally spraying such mechanofused particles. As a result, the magnets taught by Dahlin do not teach or suggest each and every element of the presently claimed invention.

The Office Action proposes combination of Dahlin’s teachings with those of Tolliver which teaches a transportation surface marker comprising a binder material and a

particulate topcoat or filler of magnetizable particles. Although not specifically in the context of magnetic particles, Tolliver teaches that the markers “can be made using several different techniques that achieve substantially uniform mixing of the reflective elements 26, skid-resistant particles 28 and binder 24 before the mixture reaches the surface 13. For example, the reflective elements 26, skid-resistant particles 28 and binder 24 can be separately fed to the flame-spray apparatus and combined at or in the flame.” (Tolliver col. 3, lines 61-67). Notably, Tolliver fails to teach or suggest incorporating the magnetic particles by mechanofusion into or onto a matrix material or thermally spraying the mechanofused composite particles onto a substrate in the presence of an applied magnetic field. In fact, the examples of Tolliver teach away from the presently claimed invention by separately feeding the magnetic particles and matrix to the flame-spray apparatus and combining them at or in the flame. Accordingly, the magnets taught by Tolliver do not teach or suggest each and every element of the presently claimed invention, and indeed teach away from the use of mechanofused particles presently required by the pending claims.

Without any articulated cross-reference to impart a suggestion or motivation within the references themselves for the combination, the Office Action proposes combining the teachings of Dahlin and Tolliver. Applicants respectfully assert that such combination is improper especially since Dahlin never even contemplates a magnetic article made by a thermal spraying process. Nevertheless, neither Dahlin nor Tolliver teaches magnets having mechanofused composites of magnetic particles and matrix material, and therefore even when

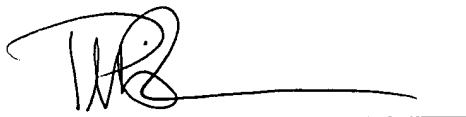
combined, the references fail to teach or suggest each and every element of the presently claimed invention.

Accordingly, Applicants assert that, when taken as a whole, the cited references do not teach – or provide the motivation to arrive at – the presently claimed invention. As such, Applicants respectfully request withdrawal of the rejection of Claims 16-17, 19-23 and 25-31 under 35 U.S.C. § 103(a).

Conclusion

Applicants respectfully request consideration and entry of the foregoing amendments and remarks into the file history of the above-identified application. The Examiner is cordially invited to contact the undersigned should it assist the Examiner in advancing prosecution of this application. An allowance is earnestly sought.

Respectfully submitted,



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